SKURIDIN, G.A., otv. red.; AL'PERT, Ya.L., red.; KRASOVSKIY, V.I.,
    red.; SHVAREV, V.V., red.

[Studies of outer space; transactions] Issledovaniia kosmi-
cheskogo prostranstva. Moskva, Nauka, 1965. 622 p.
                                        (MIRA 18:12)

1. Vsesoyuznaya konferentsiya po fizike kosmicheskogo pro-
stranstva, Moscow. 1965.

ACCESSION NR: AP4037628

s/0145/64/000/003/0047/0055

AUTHOR: Shvarev, V. V. (Aspirant)

TITLE: Accelerated fatigue testing by stepwise increase of load

SOURCE: IVUZ. Mashinostroyeniye, no. 3, 1964, 47-55

TOPIC TAGS: fatigue limit, endurance limit, 40Kh steel, 45 steel, fatigue test

ABSTRACT: The endurance limit of medium-carbon steel 45 (0.43% C, 0.56% Mn, 0.23% Si) and chrome steel 40Kh (0.39% C, 0.87% Cr, 0.76% Mn, 0.26% Si) was investigated at starting stresses of 0.5 to $1.5\sigma_{-1}$, stress increments up to $0.15\sigma_{-1}$ [σ_{-1}=S_e], and stress durations from 10^4 to 10^7 cycles. Conclusions: Failure stress depends on the properties of the material, the loading rate, the level of local stress increase, and the nature of the stressed state at the points of stress concentration. The following values for starting stress $\sigma_0 \leq \sigma_{-1}$, duration of stress $n_0 \leq 10^6$ cycles, and stress increment $\Delta\sigma \leq 0.15_{-1}$ have practically no effect on the failure stress value. The ratio of failure stress to endurance limit is a function of the loading rate and differs for different steels and different shapes of specimens. Cumulative damage depends essentially on the loading

Card 1/2

ACCESSION NR: AP4037628

rate and, in steel specimens, is minimum at $\alpha = 2 \cdot 10^{-5}$ kg per sq mm per cycle. In the two steels tested, the relation $\sigma_{fail} = \sigma_1 + A\sigma^{1/2}$ was linear only at a loading rate of 10^{-5} to $8 \cdot 10^{-5}$ kg per sq mm per cycle. Use of this relation to determine fatigue limit offers no advantages over ordinary testing methods in terms of time or number of specimens. Orig. art. has: 7 figures.

ASSOCIATION: Vsesoyuzny*y zaochny*y politekhnicheskiy institut (All-Union Correspondence Polytechnical Institute)

SUBMITTED: 00   DATE ACQ: 22Jun64   ENCL: 00

SUB CODE: MM   /   NO REF SOV: 003   OTHER: 005

Card 2/2

SHVAREV, V.V.   (Moscow)

Rapid determination of the endurance limit of steel in conditions of stress concentration. Izv. AN SSSR Met. i gor. delo no.3:173-178 My-Je'64.   (MIRA 17:7)

L 51519-65 ----- EWT(m)/EPF(c)/EWP(j)/T, --Pc-4/Pr-4-- RM
UR/0286/65/000/009/0070/0070

ACCESSION NR: AP5015306
678.743.22

AUTHOR: Zil'berman, Ye. N.; Kotlyar, I. B.; Shvarev, Ye. P.; Chernysheva, N. M.

TITLE: A method for producing polyvinylchloride. Class 39, No. 170678

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 70

TOPIC TAGS: polyvinylchloride, suspension polymerization, hydrolysis

ABSTRACT: This Author's Certificate introduces a method for producing polyvinyl-
-chloride by suspension polymerization of vinyl chloride in the presence of a
dinitrile of azoisobutyric acid as initiator and in the presence of a stabilizer.
Products of caustic hydrolysis of polyacrylonitrile are used as the stabilizer to
improve the quality of the polyvinylchloride.

ASSOCIATION: Filial organizatsii gosudarstvennogo komiteta po khimii (Affiliate
of the Organization of the State Committee for Chemistry)

Card 1/2

L 51519-65

ACCESSION NR: AP5015306

SUBMITTED: 05Nov63   ENCL: 00   SUB CODE: OC, GC

NO REF SOV: 000   OTHER: 000

Card   2/2

L 24534-66   EWT(m)/EWP(j)/T/ETC(m)-6   IJP(c)   DS/JD/WW/JG/RM

ACC NR: AP6011016   **(A)**   SOURCE CODE: UR/0080/66/039/003/0642/0646

AUTHOR: Kotlyar, I. B.; Shvarev, Ye. P.; Chernysheva, N. M.

ORG: none

TITLE: Some properties of aqueous solutions of sodium salts of styrene-maleic anhydride copolymer

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 3, 1966, 642-646

TOPIC TAGS: styrene, maleic anhydride, emulsion, copolymer, polymerization.

ABSTRACT: The stability of concentrated emulsions stabilized with protective colloids is attributed at the present time to the formation of a stable film of stabilizer on the interface. The present article examines those properties of styromal, a styrene-maleic anhydride copolymer (whose sodium salt is a stabilizer employed in suspension polymerization) which can determine the stability of the protective film at the interface. Such properties are the molecular weight and the degree of neutralization of the copolymer in solution. The styromals studied had different molecular weights. Their viscosity, surface tension, pH, foaming, and stabilizing

Card 1/2   UDC: 542.951.92 + 547.27

L 24534-66

ACC NR: AP6011016

properties in the polymerization of vinyl chloride were investigated. The proper-
ties of aqueous solutions of styromal were found to depend strongly on its molecular
weight and on the degree of its neutralization. These factors played a substantial
part in the use of salts of styromal as the emulsion stabilizer during the polymeri-
zation of vinyl chloride. The best results were obtained with a high molecular
sample which had been 25% neutralized. The data obtained from the suspension poly-
merization show that the stabilizing properties of styromal depend considerably on
its cross-linking tendencies. Orig. art. has: 4 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 07Oct63/ ORIG REF: 003/ OTH REF: 002

Card 2/2

SHVAREV, Yu., kand.voyenno-morskikh nauk; SHUSTOV, I., mayor

Effectiveness of the maneuver executing the order "man overboard."
Mor.flot 21 no.3:17 Mr '61.   (MIRA 14:6)
                        (Navigation)
                        (Rescue work)

Maneuvering the ship while rescuing a person fallen overboard.
Mor. flot 2, no. 4:21-23 S '64.   (MIRA 18:5)

ACC NR: AP6026421   (A, N)   SOURCE CODE: UR/0375/66/000/005/0028/0033

AUTHOR: Vestman, O. A. (Captain 1st Rank); Shvarev, Yu. N. (Captain 2d Rank, Candidate of Naval Sciences)

ORG: None

TITLE: Military economic analysis, its tasks and fundamental principles

SOURCE: Morskoy sbornik, no. 5, 1966, 28-33

TOPIC TAGS: government economic planning, economic development, economic organization, economic program, economic system, economics, weapon effect, weapon system, statistic analysis, research program

ABSTRACT: Military economic analysis is still inadequately formulated. There is a need to determine what constitutes a rational system for determining armament costs, based on the particular concepts prevalent in the country in question and on the state of its economy. The military economic problem differs from country to country. Different definitions are discussed with emphasis on the United States version. The formulation of a proper military economic analysis is needed in order to resolve military economic problems. The basic test of such an analysis is that of effectiveness, defined as the ratio of the result (effect) to the expenditures needed to bring them about. In the military field effect is said to be the capacity of the weapon

Card 1/2

Card 2/2

NEPRYAKHIN, G.G., prof. SHVAREVA, A.I., assistent; KRIVTSUN, V.P., ordinator

Clinical aspects and pathomorphology of the first attack of
rheumatism in a 14-month-old child. Kaz. med. zhur. no.6:
50-52 N-D '61.   (MIRA 15:2)

1. Kafedra gospital'noy pediatrii (zav. - prof. Ye.N.Korovayev),
kafedra fakul'tetskoy pediatrii (zav. - prof. K.A.Svyatkina) i
kafedra patologicheskoy anatomii (zav. - prof. G.G.Nepryakhin)
Kazanskogo meditsinskogo instituta.
                    (RHEUMATIC FEVER)

BARANOV, L.A.; D.F....VA, M.G.; SHIL....VA, ...I.

Importance of the Lonaggio reaction in determining the activity of the rheumatic process in children. Nauch. trudy Kaz. gos.med. Inst. 14:353-354 '64.   (MIRA 18:9)

1. Kafedra gospital'noy pediatrii (zav. - prof. A.Kh.Khamidullina) i nauchno-issledovatel'skaya laboratoriya (zav. - S.V.Senkevich) Kazanskogo meditsinskogo instituta.

SHVAREVA, A.I.; ZUBAIROVA, G.O.

Use of electroencephalography in rheumatism in children. Kaz.
med.zhur. no.3:39-41 My-Je '62.   (MIRA 15:9)

1. Kafefra gospital'noy pediatrii (zav. - prof. Ye.N.Korovayev
[deceased]) i kafedra otolaringologii (zav. - prof. N.N.Lozanov)
Kazanskogo meditsinskogo instituta.
          (ELECTROENCEPHALOGRAPHY) (RHEUMATIC FEVER)

7

L 5290-66   EWT(m)/EPF(c)/EWP(j)/T · RPL   WH/RM
ACC NR: AP5022052   SOURCE CODE: UR/0286/65/000/014/0129/0129

AUTHORS: Guseva, I. A.; Mal'kov, N. S.; Makarov, Yu. A.; Kulev, E. A.; Izmaylova,
I. S.; Shvareva, G. N.; Khantsis, R. Z.; Gladyshev, A. I.; Perepelkin, V. P.;
Nikitina, D. M.; Chekunin, K. I.; Rodziminskiy, V. V.

ORG: none

TITLE: Method for obtaining copolymers. Class 39, No. 144021

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 129

TOPIC TAGS: copolymer, pressure casting

ABSTRACT: This Author Certificate presents a method for obtaining copolymers on
the basis of methyl methacrylate and esters of acrylic acid by a suspension method.
To obtain colorless copolymers suitable for fabricating products by casting under
pressure, higher alcohols, e.g., octyl, as a plasticizer, esters of phthalic acid,
e.g., dicyclohexyl, as a stabilizer, and derivatives of aminocumarone, e.g.,
phenyl ester of (naphtho-1", 2":4', 5')-triazoline (2')-stilbene-2-sulfoacid, as
a clarifier are added to the mixture.

SUB CODE: MT, OC/   SUBM DATE: 15May61/   ORIG REF: 000/   OTH REF: 000
Card 1/1

0909.0501

IL'INSKAYA, I.A.; SHVAREVA, I.Ya.

Miocene flora of Kosov in the cis-Carpathian region. Paleont.
sbor. [Lvov] no.1:137-148 '61.   (MIRA 15:9)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy
institut, L'vov.
                    (Kosov (Ukraine)--Leaves, Fossil)

SHVAREVA, N.Ya.

Oligocene and Miocene Hystrichosphaeridae in the cis-Carpathian
region. Trudy UkrNIGRI no.1:125-129 '59.   (MIRA 12:12)
   (Carpathian Mountain region--Hystrichosphaeridae)

SHVAREVA, N.Ya.

Cinnamomum finds in the Ciscarpathian Miocene. Dokl.AN SSSR 138
no.5:1172-1174 Je '61.   (MIRA 14:6)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy
institut. Predstavleno akademikom V.N.Sukachevym.
              (Kosov region—Cinnamon, Fossil)

SHVARUVA, N.Ya. [Shvar'ova, N.IA.]

Upper Tortionian flora of Verbovets in the Carpathian Mountain region.
Ukr. bot. zhur. 19 no.3:93-103 '62.   (MIRA 15:7)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut,
L'vov.
    (Verbovets region—Paleobotany, Stratigraphic)

SHVAREVA, N.Ya.

Spore-pollen complexes of the Tortonian sediments in the Lvov region.
Trudy UkrNIGRI no.5:292-301 '63.   (MIRA 18:3)

SHVAREVA, N.Ya.

Genus Fagus from the Lower Sarmatian deposits of Mt. Kortunova
(Lvov). Bot. zhur. 49 no.4:523-533 Ap'64.   (MIRA 17:5)

1. Ukrainskiy nauchno-issledovatel'skiy geologo-razvedochnyy
institut, L'vov.

(MIRA 22:3)

FEL'DMAN, Ya.I.; SHVAREVA, Yu N.

Climatic conditions in new reclaimed farm lands of northern
Kazakhstan and the piedmont regions of the Altai Territory.
Izv.AN SSSR. Ser.geog. no.2:43-53 Mr-Ap '55.
(MLRA 8:6)

1. Osobaya kompleksnaya ekspeditsiya SOPS AN SSSR po zemlyam
novogo sel'skokhozyavstvennogo osvoyeniya Instituta geografii
AN SSSR.
   (Altai Territory--Meteorology) (Kazakhstan--Meteorology)

IL'ICHEVA, Ye.M.; SHVAREVA, Yu.N.

Use of gradient observations for the examination of the surface air
in the beach zone of a resort. Vop.kur.fizioter. i lech.fis.kul't.
21 no.2:27-29 Ap-Je '56.   (MLRA 9:9)

1. Iz TSentral'nogo instituta kurortologii i Instituta geografii
AN SSSR.
        (HEALTH RESORTS, WATERING PLACES, ETC.)   (AIR)

SHVAREVA, Yu. N.

3(5)   PHASE I BOOK EXPLOITATION   SOV/1781

Akademiya nauk SSSR. Institut geografii.

Voprosy fizicheskoy geografii (Problems in Physical Geography)
Moscow, Izd-vo AN SSSR, 1958. 370 p. Errata slip inserted.
1,500 copies printed.

Resp. Ed.: G.D. Rikhter, Doctor of Geographical Sciences,
Professor; Ed. of Publishing House: D.N. Tugarinov;
Tech. Ed.: N.D. Novichkova.

PURPOSE: This book is intended for meteorologists, hydrologists,
pedologists, geologists, and students of physical geography
in general.

COVERAGE: These articles are dedicated to Academician A.A.
Grigor'yev in commemoration of his seventy-fifth birthday
anniversary. They treat problems in physical geography per-
taining to the northern regions of the USSR and particularly
those of Yakutia. The majority of the articles are devoted

Card 1/4

Problems in Physical Geography   SOV/1781

to questions of latitudinal and vertical zonation and contain
much factual material on the relationship between the various
geographic components. Practical conclusions and meteoro-
logical principles are cited. Each article is accompanied by
maps, photographs and numerous bibliographic references.

TABLE OF CONTENTS:

Card 2/4

Problems in Physical Geography   SOV/1781

Card 3/4

IL'ICHEVA, Ye.M.; SHVAREVA, Yu.N.

Comparative evaluation of methods for characterizing heat sensitivity
in man. Vop. kur., fizioter. i lech. fiz. kul't. 26 no. 2:107-111
Mr-Ap '61.   (MIRA 14:4)

1. Iz laboratorii kurortnoy klimatologii (rukovoditel' L.A.
Chubukov) TSentral'nogo instituta kurortologii i Instituta
geografii AN SSSR.
          (CLIMATOLOGY, MEDICAL) (BODY TEMPERATURE)

IL'ICHEVA, Ye.M., nauchn. sotr.; SIVAREVA, Yu.N., nauchn. sotr.;
KURASHOV , S.V., red.; GOL'DFAYL', L.G., red.; POSPELOVA,
G.N., red.; Prinimali uchastiye: BAKHMAT, V.I., kand. khim.
nauk, red.; IVANOV, V.V., kand. med. nauk, red.; KARAYEV,
R.G., kand. med. nauk, red.; LARICHEV, L.S., red.; NEVRAYEV,
G.A., red.; OPPENGEYM, D.G., kand. med. nauk, red.;
POLTORANOV, V.V., red.; CHUBUKOV, L.A., doktor geogr. nauk,
red.; VUL'FSON, I.Z., red.; KUZ'MINA, N.S., tekhn. red.

[Health resorts of the U.S.S.R.]Kurorty SSSR. Moskva, Medgiz,
1962. 797 p.   (MIRA 15:11)
        (HEALTH RESORTS, WATERING PLACES, ETC.)

BAYBAKOVA, Ye.M.; CHUBUKOV, L.A.; BILIBEVA, Yu.N.

Evgraf Evgrafovich Fedorov, 1880-1965; obituary. Izv. AN SSSR.
Ser. geog. no.5:157-158 S-O '65. (MIRA 18:10)

SHVAREVA, Z.

      Evgenii Mitrofanovich Kurdinovskii; on the 25th anniversary of his
      death. Akush. i gin. 34 no.4:120-121 Jl-Ag '58   (MIRA 11:9)
          (KURDINOVSKII, EVGENII MITROFANOVICH, 1874-1933)

SHVARD'AN/A8G?   600

1. KOLESNIKOV, L. G., SHVARD'AN, A. G.

2. USSR (600)

    "On the Alkaloids of Sedum Acre", Zhur, Obshch. Khim, 9, No. 23, 1939. Lab. of
    Photochemistry, Ukraninish Inst. of Experimental Pharmacy, Kar'kov. Received
    21 June 1939.

9. Report U-1626, 11 Jan 1952.

MIKULIN, Boris Pavlovich; SHVARKOV, P.M.; GNEZDILOV, V.B., red.;
    red.; YEZDOKOVA, M.L., red. izd-va; ISLENT'YEVA, P.G., tekhn.
    red.

[Surveying designing, and planning of industrial railroads]Izy-
skaniia i proektirovanie zheleznykh dorog promyshlennykh pred-
priiatii. Moskva, Metallurgizdat, 1962. 271 p. (MIRA 15:12)
          (Railroads, Industrial--Construction)

ROSSOVSKIY, L.N.; SHVARKOV, S.L.

Influence of depth on the formation of granite-pegmatites.
Geol. rud. mestorozh. 6 no.5:30-39 S-O '64.   (MIRA 17:12)

SHWARSALON, N. S.

"The Part Played by the Vascular Reflexogenic Zones in the Alterations of Respiration Caused by Injection of Adrenalin," Farmakol. i Toksikol., 4, No. 2, 1941. Chair of Pharmacology, Head--Prof. W. J. Skworzob, of the 2nd. Med. Inst., Moscow, 1941.

SHVARGALON, M.

"Effect of Injection of Drugs into Arteries and Veins," Farmakol. i Toksikol., 5, No. 1-2, 1942. Chair of Pharmacology of the 2nd. Medical Institute, Moscow, -1942-.

11-H

Influence of analeptics on respiration in KCN poisoning.
N. S. Shvarsalon. *Farmakol. i Toksikol.* 7, No. 3, 29-36
(1944).—After intravenous injections of KCN in dogs the
use of stimulants for the central nervous system during
cessation of respiration is contraindicated. In the period
of deep, infrequent respiration lobeline and cytitone stimu-
late respiration, but since they are cardiac depressants
their doses must be small. Cytitone (dose 0.1 ml./kg.
equiv. to 0.015 mg. cytisine per kg.) is preferable because
of lower cardiac activity. Large intravenous doses of
adrenaline are beneficial to test animals in KCN poisoning;
ephedrine is less effective. Sympatol sometimes stimu-
lates respiration. Like adrenaline, its effect is variable
and adrenaline is preferable. Cordiamine and spiramine
are ineffective unless the test animal is already in a coma.
In the stage of rapid, shallow breathing respiratory
stimulants are superfluous. Respiration charts are shown,
and some tests with metrazole are reported.   J. F. S.

METALLURGICAL LITERATURE CLASSIFICATION

// H

Effects of benzene and gasoline on the organism at low atmospheric pressure. N. S. Shvarsalon. *Farmakol. i Toksikol.* **8**, No. 3, 51-5(1945). Rats, with mice poisoned by C₆H₆ vapor (I) at pressures corresponding to sea level, 5000 m. (380 mm. Hg) and 10000 m. (462 mm. Hg) show some increase in toxicity under prolonged exposure of 1 hr. at 580 mm. and a somewhat greater increase at 462 mm., with earlier death. With aviation gasoline (I,70 (II) there was earlier loss of muscle coordination than with I, sharper decrease or cessation of O₂ as a factor in and earlier narcosis. Partial pressure of O₂ is a factor in ..... both for I and for II.   Julian F. Smith

METALLURGICAL LITERATURE CLASSIFICATION

SHVARSALON. N.S.

Hematogasometric analysis for studying the effects of medicines on respiration. Report no.1. Effect of ephedrine on respiration. Farm.1 toks. 10 no.4:9-16 Jl-Ag '47.   (MLRA 7:2)

1. Iz kafedry farmakologii II MGMI im. I.V.Stalina (zaveduyushchiy - deystvitel'nyy chlen Akademii meditsinskikh nauk zasluzhennyy deyatel' nauki professor V.I.Skvortsov).
                         (Ephedrine--Physiological effect)

SHVARTSON, N. T.

"Change in the Gases of the Blood Due to Intravenous Injections of Ephedrine, Citatone, Lobeline, Corazol, and Cordi-Amine." Sub 15 Oct 51, Second Moscow State Medical Inst imeni I. V. Stalin.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: S um. No. 480, 9 May 55

SHVARSALON, N. S.

Effect of analeptics on blood ferments. Uchen. zapski. vtor.
moskov. med. Inst. Stalina 1:139-145 1951.   (CIML 21:3)

1. Assistant. 2. Department of Pathological Physiology (Head --
Honored Worker in Science Prof. G. P. Sakharov).

SHVARSALON, N.S.

Pharmacologic study on respiration according to Pavlovian theory on
nervosism. Tr. Vsesoius. obsh. fisiol. no. 1:129-130 1952. (CLML 24:1)

1. Delivered 28 April 1950, Moscow.

USSR / Pharmacology and Toxicology. Anesthetics.   V-1

Abs Jour   : Rof. Zhur - Biologiya, No 17, 1958, No. 80474

Author   : Shvarsalon, N. S.
Inst   : Crimean Medical Institute
Title   : Influence of Soporific Substances on Higher Nervous
             Activity

Orig Pub   : Tr. Krymsk. med. in-ta, 1957, 18, 150-152

Abstract   : To evaluate the influence of soporific agents on
             conditioned roflex activity, the author utilizes the motor-
             food method on rats and mice. The most useful method for
             determining the degree of habit formation in a soporific is
             the actograph, with a register of the animals movements on
             a kymograph. Of the soporifics studied, barbamil and
             luminal do the most harm to the CNS, and veronal, medinal
             and, seemingly, nembutal do the least harm (during long
             use). Chloralhydrate, in view of its rapid habit forming,

Card 1/2

3

SHVARSALON, Nikolay Semenovich, prof.; CHISTYAKOVA, N.P., red.;
MIRONOVA, A.M., tekhn. red.

[Handbook on practical tasks in making prescriptions] Rukovod-
stvo k prakticheskim zaniatiiam po retsepture. Moskva, Medgiz,
1962. 122 p.   (MIRA 15:7)
            (PRESCRIPTION WRITING)

GAVRILENKO, N. ...

Hemostatic effect of 5-aminocaproic acid. Vrac. delo ks. 25
no.4:72... 1957 N-O '65.

1. Kafedra farmakologii (zav. - prof. N. ... Travianko) Krymskogo
meditsinskogo instituta, Simferopol'.

USSR/Medicine - Insecticides   Oct 51

"Insecticidal Effect of Soap and Oil Paint When Mixed With Hexachlorocyclohexane," N. V. Geminov, E. I. Shvarsshteyn, R. T. Panin, Kuybychev Oblast Pub Health Div and Oblast Sanitary Epidemiol Sta

"Gig 1 San" No 10, pp 41-43

Soap mixed with hexachlorocyclohexane without any other admixt can be used successfully and economically to combat lice and as a preventive against them. Linens can be washed in a 3-5% emulsion of this soap in hot water to sterilize them. The method is simple and can be used under all

USSR/Medicine - Insecticides (Contd)   Oct 51

conditions, because no great amt of disinfectant is needed. Rinsing and ironing lessens the activity of the insecticide in the linen. The effect of the disinfectant in the linen lasts more than 4 mos in the laboratory and 3 mos when repeated washing is necessary. Without any other admixts the soap retains its insecticidal effect for 5½ mos.
Surface oil paints with an admix of 10 and 5% hexachlorocyclohexane have a strong insecticidal effect. This effect remains for 2 mos. Hexachlorocyclohexane mixed with oil-paint loses its odor to a considerable extent.

199T94

L 61055-65   EPF(c)/EWP(j)/EWT(m)/T   Pc-4/Pr-4/Ps-4   RPL   RM/WW

ACCESSION NR: AP5016509   UR/0190/65/007/006/1056/1059
                                                 678.01 : 53+678.76

AUTHORS: Makarova, L. V.; Shvarts, A. G.; Zakharov, N. D.; Priborets, A. M.

TITLE: Determination of the cohesion energy density of some synthetic rubbers with functional groups

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 6, 1965, 1056-1059

TOPIC TAGS: synthetic rubber, cohesion energy, tensile strength, tensile stress, copolymer, methylmethacrylate

ABSTRACT: The investigation was undertaken to characterize the intermolecular interaction in a number of synthetic rubbers containing functional groups in terms of their cohesion energy density. The compounds studied were: chlorosulfopoly-ethylene and the copolymers of methyl methacrylate with divinyl. Vulcanization was carried out at 143C for 50 minutes. The cohesion energy density was derived from the measured change in the equilibrium modulus of elasticity resulting from the swelling action of vaseline oil and dibutyl phthalate on the specimen, as suggested by A. G. Shvarts (Zh. fiz. khimii, 32, 718, 1958). The experimental results are summarized in Fig. 1 on the Enclosure. Orig. art. has: 4 tables and 1 graph.

Card 1/3

L 61055-65
ACCESSION NR: AP5016509

ASSOCIATION: Yaroslavskiy tekhnologicheskiy institut (Yaroslavl Technological Institute); Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific Research Institute of the Tire Industry)

SUB CODE: MT

SUBMITTED: 23Jul64

ENCL: 01

OTHER: 002

NO REF SOV: 005

Card 2/3

L 61055-65
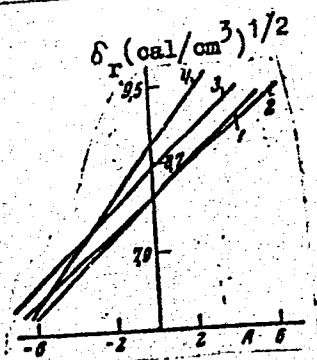ACCESSION NR: AP5016509

$\delta_r (cal/cm^3)^{1/2}$

Fig. 1. Dependence of the solubility parameter (δ r) on the magnitude of $\sqrt{(\mu - \mu_s)/\delta}$r x 10^2(A): 1 - SKMVP - 15ARP (copolymer of methyl methacrylate and 2-methyl-5-vinyl peridine), 2 - SKMMA - 30A, 3 - SKMMA - 50A (copolymers of methyl methacrylate and divinyl containing 30 and 50% of the former); 4 - khaypalon-20 (chlorosulfopolyethylene). Where μ is a constant characterizing the interaction between the rubber and dissolving solvent, μ_s = 0.25 for all rubbers and δr molar volume of the solvent.

Card 3/3

67749

/P.9100

SOV/126-8-5-1/29

AUTHORS: Galishev, V.S., Orlov, A.N. and Shvarte, I.A.

TITLE: An Estimate of the Conditions Necessary for the
Autoradiographic Detection of Adsorptional
Irregularities in Concentration

ABSTRACT: Arkharov et al (Ref 1) have discussed the autoradiographic
method employing β-active isotopes. They have considered
a specimen in the form of a plane-parallel plate having a
thickness b in the direction of the y axis, and
infinite in the direction of the x and z axes.   A
part of the plane x=0, defined by the planes y=0 and
y=b, forms an infinitely thin intercrystallite zone on
which β-active atoms become adsorbed.   It is then
necessary to calculate the electron density $F(\gamma, r)$ for
electrons having energy E.   Bethe et al (Ref 2) have
shown that if the condition given by Eq (1) is satisfied,
then the determination of the function F, which can be
found by solving a diffusion equation, is particularly
simple.   In Eq (1), $\lambda(E)$ is the mean free path of an
electron having energy E (Ref 3).   Under this condition,

Card
1/4

67749

SOV/126-8-5-1/29

An Estimate of the Conditions Necessary for the Autoradiographic
Detection of Adsorptional Irregularities in Concentration

the electron density emitted by the intercrystallite zone
near the surface of the specimen and at the distance   x
from the zone, is given by Eq (2), where s_0 is the
number of electrons emitted per unit area of the zone.
The electron density emitted uniformly over the volume of
a grain by distributed sources, and measured at the
surface of the specimen, is given by Eq (3), where v_0
is the number of electrons emitted per unit volume of the
grain.   The spectral density of the electron flux at
y=o and y=b is given by Eq (4).   Galishev et al
(Ref 3) have treated the problem more exactly and
considered the systems $Al+0.1\%Ag^{110}$ and $Cu+0.1\% Sb^{124}$.
They assumed that the concentration of the active
component in the intercrystallite zone is 10% and that
the criterion for the detection of this zone is that the
difference between the blackening of the photographic
plate due to the zone and the background should be greater
than 0.1 (Eq 5).   The blackening of the photographic plate
is proportional to the radiation dose D which is given
by Eq (6) where $\aleph$ is the absorption coefficient of the

Card
2/4

67749

SOV/126-8-5-1/29

An Estimate of the Conditions Necessary for the Autoradiographic
Detection of Adsorptional Irregularities in Concentration

photographic emulsion and c'(E) is the probability of
absorption of an electron with energy E during the
formation of the latent image.   The present paper gives
a critical discussion of the criteria derived in the
above papers and takes into account the form of the
function n(x) and the dependence of c on energy.
A condition for optimum blackening of the photographic
plate is derived (Eq 13).   If the function c(E) is
assumed to be linear (there are no experimental data to
contradict this) then the condition takes the form of
Eq (14').   The integrals involved in this condition
have been computed by the authors for electrons between
0.02 and 0.35 Mev for aluminium, copper and lead, and
specimen thicknesses of 10^{-4}, 10^{-3} and 10^{-2} cm.   The
results obtained are summarized in one figure and two
Card   tables.   There are 9 references, of which 3 are
3/4   English and 6 are Soviet.

677.9

SOV/126-c-5-1/29

An Estimate of the Conditions Necessary for the Autoradiographic
Detection of Adsorptional Irregularities in Concentration

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, Academy of Sciences
of the USSR)

SUBMITTED: July 28, 1959

Card 4/4

AUTHORS: Galishev, V.S. and Shvarte, I.A.

TITLE: Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

PERIODICAL: Akademiya nauk SSSR. Ural'skiy filial, Sverdlovsk. Institut fiziki metallov. Trudy, no.22, 1959, pp.37-49

TEXT: A large number of papers have appeared on the non-uniform distribution of alloy components in which the distribution was investigated by the autoradiographic method, using radioactive tracers (A. Kohn, Ref.1; S. Z. Bokshteyn et al., Ref.2; M.Ye.Drits et al., Ref.3 and S. F. Yur'yev and B. I. Bruk, Ref.4). In all these papers the nonuniform distribution of the alloy components was detected by introducing radioactive traces into the alloy or by activating the alloy with subsequent autoradiographic recording of the labelled component. V. I. Arkharov (Refs.5 and 6) working at the Laboratoriya diffuzii Instituta fiziki metallov AN SSSR (Diffusion Laboratory of the Institute of Physics of Metals, AS USSR) showed that equilibrium irregularities in the concentration of dissolved impurities exist in alloys and are associated with structural irregularities of the material. The formation of such

Card 1/8

S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregular-
ities in Alloys

concentration irregularities is due to the fact that the excess
energy of structural irregularities and, in particular, inter-
crystallite transition zones, is considerably reduced when these
irregularities are enriched with one of the components of the alloy.
This leads to the appearance of very small regions of modified
concentration (100 to 1000 Å) and the change in the concentration
in these regions as compared with the average composition of the
alloy may be of one or two orders of magnitude (V. I. Arkharov,
N. N. Skornyakov, Ref.7). The phenomenon of internal adsorption
has been investigated by V. I. Arkharov (Ref.8) from the point of
view of the possibility of its autoradiographic detection. In the
present paper the problem is considered on the basis of the
following simplified model. The specimen under investigation is in
the form of a plane-parallel plate of finite thickness b in the
y direction and lying on the xz plane. The intercrystallite zone
is assumed to lie on the x = 0 plane and other intercrystallite
zones are taken to be sufficiently distant to be ignored. Moreover,
it is assumed that the concentration of the radioactive atoms in
Card 2/8

S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregular-
ities in Alloys

the specimen as a whole was only a few tenths of a percent, while
the concentration in the intercrystallite zone was of the order of
10%. The electron density $F(x,y,z,\tau)$ at a point (x,y,z) satisfies
the equation

$$\frac{\partial F}{\partial \tau} = \Delta F + S\ (x,y,z)\ \delta(\tau) \tag{1}$$

where S is the density of electrons emitted by the available
sources and $\delta(\tau)$ is the Dirac δ-function. Eq.(1) is solved subject
to the boundary conditions

$$-\frac{\partial F}{\partial y} + hF = 0\ (y = 0);\quad \frac{\partial F}{\partial y} + hF = 0\ (y = b) \tag{2}$$

where the parameter h is a proportionality coefficient. When
$hb \ll \pi^2/2$, the solution of Eq.(1) is quite simple (Arkharov, Ref.8).
Moreover, if the electrons are emitted only by the intercrystallite
zone, which is looked upon as a plane isotropic source of electrons,
then on the surface of the specimen
Card 3/8

S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregular-
ities in Alloys

$$F(x, 0, \tau) = F(x, b, \tau) = -\frac{S_0}{\sqrt{2\tau}\sqrt{2\pi}} exp\left(\frac{-2h\tau}{b}\right) \cdot exp\left(-\frac{x^2}{2(\sqrt{2\tau})^2}\right). \quad (4)$$

If the electrons are emitted by radioactive atoms, which are
uniformly distributed in the specimen as a whole, then in the
absence of the intercrystallite zone one has for any x on the
surface of the specimen

$$F'(0,\tau) = F'(b,\tau) = \frac{v_0}{\sqrt{2\pi}} \, exp\left(-\frac{2h'\tau}{b}\right) \qquad . \quad (5)$$

The total electron density on the surface of the specimen is then
given by the sum of the contributions represented by Eqs.(4) and
(5). The ratio of the maximum electron density (at the point x=0)
to the "background" electron density is given by
Card 4/8

S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregular-
ities in Alloys

$$\frac{F(0,b,\tau)}{F'(b,\tau)} = \frac{S_o}{v_o} \frac{1}{\sqrt{2\tau}} \qquad (6)$$

where S_o and v_o is the number of electrons emitted by the
sources per second in the intercrystallite zone and the specimen as
a whole, respectively. In Ref.8 only qualitative conclusions were
obtained about the intensity of the β-radiation on the surface of
the specimen and, moreover, the magnitude of the coefficient h in
Eq.(2) was not estimated. In the present paper the coefficient h
is computed and an attempt is made to estimate the possibility of
detection of intercrystallite boundaries in some specific cases.
It is shown that the parameter h is inversely proportional to the
mean free path and thus plays the role of an absorption coefficient
for the electrons. It is a function of the energy of the
electrons and the properties of the scattering material. In
particular, it is shown that

$$h(E) = \frac{3}{\lambda(E)}. \qquad (18)$$

Card 5/8

S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregular-
ities in Alloys

The theoretical values of h for electron energies between
0.051 MeV and 10.22 MeV are given in Table 1 for Al, Cu and Pb.
The calculated values of h are based on data given by H.A.Bethe
et al. (Ref.9). A calculation is then carried out of the total
number of electrons leaving a unit area of the surface of the speci-
men per unit time due to the electrons emitted by the specimen
as a whole ("background") and the electrons emitted by the inter-
crystallite zone. It is assumed that the parameter h is constant.
The ratio of the latter two quantities at x = 0, which is denoted by
$\triangle$ is then shown to be given by

$$\Delta = \frac{s_0}{r_0} \frac{V_s^-}{V_t^-} \frac{\sum_i g_i \sqrt{h_{si}} \bullet \left(2 \sqrt{\frac{h_{si} s_0}{s}}\right)}{\sum_i g_i \left(1 - e^{\frac{-2 h_{si} s_0}{s}}\right)} \quad (31)$$

where g_i refers to the fraction of the electrons emitted by the

Card 6/8

S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregular-
ities in Alloys

i-th line and h_{oi} is the corresponding value of h (assumed
constant). The values of $\triangle$ are then calculated for the following
two specific cases:
Case I.   Specimen as a whole 99.9% Al + 0.1% Ag^{110}; intercrystallite
zone 90% Al + 10% Ag^{110}.
Case II.   Specimen as a whole 99.6% Cu + 0.4% Sb^{124}; intercrystallite
zone 90% Cu + 10% Sb^{124}.
It is shown that the parameter $\triangle$ can be used as a criterion for
deciding whether a particular irregularity can be detected. If
$\triangle$ 1.1-1.5, then a thin layer enriched with radioactive atoms can
be detected by the autoradiographic method. However, the value of b
must be sufficiently small. For example, in the case of the Al-Ag
alloy, the thickness should be less than 10 μ, while for the Cu-Sb
alloy it should be smaller still. The best results can be obtained
if the following points are observed: a) the specimen thickness
should be as small as possible, b) elements with low Z numbers
should be used, c) β-particles employed should have as low an

Card 7/8

S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregular-
ities in Alloys

energy as possible and d) the regions of internal adsorption should
have as large dimensions as possible.   Acknowledgments are
expressed to A. N. Orlov for his interest in this work.   There are
1 figure, 5 tables and 19 references: 14 Soviet and 5 non-Soviet.

Table 1

Values of $h(E_c)$, cm^{-1}

Scatter-ing mat-erial	Values of E_o, MeV							
	0.051	0.102	0.255	0.511	1.022	2.555	5.110	10.22
Al	$1.16 \cdot 10^3$	$3.68 \cdot 10^2$	$1.07 \cdot 10^2$	$2.7 \cdot 10$	9.55	2.24	0.945	0.27
Cu	$8.33 \cdot 10^3$	$2.6 \cdot 10^3$	$7.05 \cdot 10^2$	$1.91 \cdot 10^2$	$6.7 \cdot 10$	$1.53 \cdot 10$	6.3	1.82
Pb	$3.1 \cdot 10^4$	$9.25 \cdot 10^3$	$2.0 \cdot 10^3$	$6.82 \cdot 10^2$	$2.27 \cdot 10^2$	$5.31 \cdot 10$	$1.83 \cdot 10$	5.41

Card 8/8

GALISHEV, V.S.; ORLOV, A.N.; SHVARTE, I.A.

Autoradiographic revealing of heterogenous adsorption concentrations.
Issl. po zharopr. splav. 6:158-162 '60.   (MIRA 13:9)
        (Autoradiography)   (Crystal lattices)
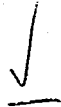
S/126/60/010/003/008/009/XX
E201/E391

AUTHORS: Orlov, A.N. and Shvarte, I.A.

TITLE: Mechanical Stability of Large-angle Dislocation
             Boundaries Between Grains

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol. 10,
              No. 3, pp. 492 - 494

TEXT: Electron-microscopic observations (Ref. 1) showed that
in some cases large-angle grain boundaries in metals possess
fine structure in the form of several parallel dislocation
walls.   This observation is confirmed by indirect information
from internal adsorption (Ref. 2) which indicates that grain
boundaries are defect regions of several hundred angstrom
width.   The present note gives equations for equilibrium
distances between dislocation walls for any number (n) of such
walls.   The case of n = 5   is discussed in detail and the
energies of grain boundaries meeting at a given angle are
compared for n = 1, 3, and 5.   The calculations show that, for
a given angle between boundaries, the boundary energy rises
with increase of n . Assuming that the dislocation model of

Card 1/2

S/126/60/010/003/008/009/XX
E201/E391

Mechanical Stability of Large-angle Dislocation Boundaries
Between Grains

grain boundaries is applicable for dislocations closer to one
another than 10 interatomic distances, the maximum angles
between neighbouring grains are found to be $5°45'$, $7°27'$
and $12°35'$ for n = 1, 3 and 5, respectively. The authors
consider also dislocation walls where the dislocation density
varies from wall to wall. The paper is entirely theoretical.
Acknowledgment is made to Yu.A. Shakov for communicating the
results of his work (Ref. 1) before publication.
There are 6 references: 2 Soviet and 4 non-Soviet.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of
               Physics of Metals of the AS USSR)

SUBMITTED: May 3, 1960

Card 2/2

SHVARTIN, S.M.

Transports over road networks with allowance for losses. Dokl. AN
SSSR 141 no.6:1324-1327 D '61.   (MIRA 14:12)
                        (Functional analysis) (Cybernetics)

SHVARTS, A., kand.tekhn.nauk; VESHNIKOV, A., inzh.

For inventors of rotary engines. Izobr. i rats. no.7:39-40 and 3 of
cover Jl '61.   (MIRA 14:6)

(Gas and oil engines)

SHVARTS, A., kandidat na tekhnicheskite nauki; VESHNIKOV, A., inzh.; KOMOV, S.

On the rotor motors with internal combustion. Ratsionalizatsiia 11
no.9:13-17 '61.

1. Direktor na Vseuiuzniia nauchno-tekhnicheski institut pri Durzhavnata
patentna ekspertiza(for Komov)

(Gas and oil engines)

SHVARTS, Anatoliy

Soldiers of science. Zdorov'e 6 no.5:28-29 My '60.

(PHYSICIANS, RUSSIAN)

(MIRA 13:6)

SHVARTS, A.

Brave heart. Tekh.mol. 28 no.7:24-25 '60.   (MIRA 13:8)
(TRANSPLANTATION OF ORGANS, TISSUES, ETC.)
(CANCER RESEARCH)

SHVARTS, A.

Investigating the secrets of muscles. Znan.sila 36 no.11:28-31
N '61.   (MIRA 14:11)
                  . (MUSCLES) (ELECTROPHYSIOLOGY)

SHVARTS, A.; IVANOV, B.

"Investigating materials used in making shoes" by M.G.Liubich.
Reviewed by A.Shvarts, B.Ivanov. Kozh.-obuv.prom. no.4:36-38
Ap '59.   (MIRA 12:7)
         (Boots and shoes--Testing)
            (Liubich, M.G.)

MILINA,   M.   SHARTS, A.

The main ainance of tank guns.   No 6.

Tankist,   No 12, 1948.

The preservation and care of tank optical instruments. No 8.

Tankist, No 12, 1948.

SHVARTS, A.

A study of tank armament. No 10.

Tankist, No 12, 1948.

CHVARTS, A.

Winter servicin of tank armament. No 11,

T nkist,   No 12, 1948.

SHVARTS, A. (Pl'zen', Chekhoslovatskaya Sotsialisticheskaya Respublika)

Thrombotic thrombocytopenic purpura (Moschcowitz's disease),
Arkh. pat. no.10:29-37 '64.   (MIRA 18:10)

1. Institut patologicheskoy anatomii imeni Shikla (dir.- prof.
I. Vanek) Karlova universiteta v Pl'zene.

S. A.

Magnetism

Calculation of the magnetic ... in Permalloy sheet and determination of its characteristic ... A. A. ...... Zh. Tekh. Fiz., ..., 1293-300 (No. 11, 1951) In Russian.

The investigation of the behaviour of ferromagnetic ... in weak fields is usually based on an empirical relation between flux density and field strength, and for a sinusoidal field variation this formula permits of deriving approximations for effective permeability ... B. P. KRAUS

Shvarts, A.A.

USSR.

Spin resonance in ferromagnetics. A. A. Shvarts.
Zhur. Tekh. Fiz. 23, 411-16(1953).—MnFe, or when used
as a core of an induction coil shows a resonance of effective
induction L_{eff} and effective resistance R_{eff} at 45 kc. This
resonance disappears upon immersion in a liquid; the
frequency depends on the core diameter. The phenomenon
is explained on the basis of a theory by Landau and Lifshits
(Physik. Z. Soufjetunion 8, 157(1935)). A strong effect
of magnetostriction must be expected; the theory is ap-
plicable to any ferromagnetic, and resonance was observed
in permalloy. Oxifer can show several resonant frequencies.
S. Pakswer

"Study and Computation of Losses in Cores of Ferromagnetic Oxides."
Cand Phys-Math Sci, Leningrad State U, Leningrad, 1954. (RZhFiz, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations
Defended at USSR Higher Educational Institutions (14)

USSR/ Physics - Ferrites

Card 1/1   Pub. 43 - 7/11

Authors   : Shvarts, A. A.

Title   : Study of the clinkering temperature effect on the mechanical, structural, and electromagnetic properties of the "oxyfer-2000" (ferrite)

Periodical : Izv. AN SSSR ser. fiz. 18/4, 489-493, Jul - Aug 1954

Abstract   : A study of the clinkering temperature effect on mechanical structural and electromagnetic properties of the ferrite "oxyfer 2000" is presented. Due to some peculiarities in the structural characteristics of the "oxyfer 2000", a special method, developed by Hoffman, was applied in the study. The results are presented in a series of graphs which are explained. Three USSR references (1935-1953). Illustrations.

Institution :   ...

Submitted   : May 12, 1954

PHASE I BOOK EXPLOITATION   SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam
ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Fizika, fiziko-khimicheskiye i fiziko-khimicheskiye svoystva. Doklady
(Ferrites: Physical and Physicochemical Properties. Reports)
Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted.
4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel
fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: M. N. Sirota, Academician of the
Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondor-
skiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Pro-
fessor; G. A. Smolenskiy, Professor; N. N. Shol'ts, Candidate of
Physical and Mathematical Sciences; Z. M. Smolyarenko; and Tech.
Ed.: L. A. Bankirov; Ed. of Publishing House: S. Kholyavskiy; Tech.
Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists,
radio electronics engineers, and technical personnel engaged in
the production and use of ferromagnetic materials. It may also
be used by students in advanced courses in radio electronics,
physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-
Union Conference on Ferrites held in Minsk, Belorussian SSR.
The reports deal with magnetic transformations, electrical and
galvanomagnetic properties of ferrites, studies of the growth
of ferrite single crystals, problems in the chemical and physi-
cochemical analysis of ferrites, studies of ferrites having
rectangular hysteresis loops and multicomponent ferrite systems
exhibiting spontaneous rectangularity, problems in magnetic
structure, highly coercive ferrites, magnetic spectroscopy,
ferromagnetic resonance, magneto-optics, physical principles of
using ferrite components in electrical circuits, anisotropy of
electrical and magnetic properties, etc. The Committee on Mag-
netism, AS USSR (S. V. Vonsovskiy, Chairman) organized the con-
ference. References accompany individual articles.

Card 17/18

Ferrites (Cont.)   SOV/4893

Mikhaylovskiy, L. K.   Cross Modulation in a Ferrite   587

Dubossarskaya, V. Ya., A. A. Manuylova, and S. P. Stantahev-
skaya.   Investigation of Magnesium-Chromium Ferrites in the   591
Decimetric Wave Range

Fabrikov, V. A.   The Theory of Ferrite Dielectric Delay   596
Lines With Distributed Constants

Shvarts, A. A.   Magnetostrictive Cores From Ferric Oxides   607

Shamayev, Yu. M.   Calculation of Transient Processes in
Pulsed Circuits Containing Inductors and Transformers With   617
Ferrite Cores Which Have Rectangular Hysteresis Loops

Belyavskiy, V. F., and Yu. M. Shamayev.   Calculation of Con-
stant Conditions in Pulsed Circuits Containing Ferrites With   623
Rectangular Hysteresis Loops

Card 18/18

ACC NR: AP5025803   SOURCE CODE: UR/0363/65/001/009/1617/1619

AUTHOR: Shvarts, A. A.; Dukhovskaya, Ye. L.; Agranovskaya, A. I.

ORG: none

TITLE: New transparent garnet

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 9, 1965, 1617-
-1619

TOPIC TAGS: garnet, gallium compound, calcium compound, niobium compound, crystal
optic property, X ray diffraction analysis

ABSTRACT: In order to produce optically transparent compounds, an attempt was made
to synthesize the compound $Ca_3Ga_{3.5}Nb_{1.5}O_{12}$ and solid solutions $Ga_3Fe_xGa_{3.5-x}Nb_{1.5}$
O_{12} (where $0 \leq x \leq 0.5$). The samples were prepared by mixing $GaCO_3$, Ga_2O_3, Nb_2O_5,
and Fe_2O_3 in an agate mortar and firing at high temperatures. The products were
analyzed by x-ray diffraction with a URS-50I unit. Analysis showed that in the ab-
sence of Fe_2O_3 or when it is introduced in amounts corresponding to values of x
from 0.1 to 0.3, single-phase solid solutions with a garnet structure are formed
(beginning at 1250°C for $x = 0$ and 1150°C for $x = 0.1$ and 0.3). It was found that

Card 1/2   UDC: 546.41'681'723'882.5

L 14588-66

ACC NR: AP5025803

in the compound $Ga_3Ga_{3.5}Nb_{1.5}O_{12}$, the niobium ions occupy only octahedral positions. A 100-μ thick polycrystalline plate of this compound is transparent in the 0.8-10μ range. Orig. art. has: 1 figure, 1 table.

SUB CODE: 08, 07   SUBM DATE: 03May65/   ORIG REF: 001/   OTH REF: 005

FW

Card 2/2

WEITAYEV, A. M.

Docent, Lung Clinic, Inst. Clinic, Inst. Climatotherapy of Tuberculosis, Yalta, -c1943-.
"Thalassotherapy in Tuberculosis of the Lungs," Prob. Tube., No. 1, 1948.

CA

SHVARTS, A G

PROCESSES AND PROPERTIES INDEX

The action of inhibitors in the photochemical dissociation of hydrogen peroxide. B. Daïn and A. Shvarts. Acta Physicochim. U. R. S. S. 3, 201 302(1935)(in English); J. Phys. Chem. (U. S. S. R.) 7, No. 2(1936) (in Russian).—On the basis of data previously published (J. Phys. Chem. (U. S. S. R.) 4, 478(1933)) D. and S. conclude that the photochem. decompn. of H₂O₂ goes by way of HO radicals and is defined by the rate equation − d[H₂O₂]/dt = k[⅟²][H₂O₂]^{⅟²}. By a study of the decompn. of pure H₂O₂ and of H₂O₂ with from 1 × 10⁻⁴ up to 2 × 10⁻⁴ moles added ketone per l. it was found that, the rate of decompn. of H₂O₂ at 75° illuminated by light from a Hg-vapor lamp is reduced to ⅟₄ by 91 × 10⁻⁴, 20 × 10⁻⁴ and 26 × 10⁻⁴ moles per l., resp., of Me₂CO, MeCOEt and Et₂CO. The correction for internal absorption of light by ketone was never over 5%. The ratio $k_i = V_i/V_1$ for the velocities of inhibited and uninhibited reactions are linear functions of the ketone concn. The energy of activation for reaction of hydroxyl with a ketone is of the order 25-30 Cal. D. and S. assume that only primary OH reacts with the ketone, leading to a decrease in the initial no. of chains rather than to breaking of chains already initiated.   F. H. Rathmann

A18-3L4   METALLURGICAL LITERATURE CLASSIFICATION

U S S P

Effect of molecular interaction on the kinetics of swelling of elastomers. V. E. Gul and A. G. Shvarts (Lomonosov Inst. Fine Chem. Technol., Moscow). *Kolloid. Zhur.* 17, 24–30; *Colloid J.* (U.S.S.R.) 17, 21–5(1955)(Engl. translation); cf. preceding abstr.—When a rubber was immersed in a liquid to swell, its wt. became a linear function of time after a period t. This t was, at room temp., for a vulcanizate (I) of smoked-sheet rubber 25, 48, and 192 hrs. for swelling in MeCOEt, EtOH, and MeOH, resp.; the difference between the ds. ρ of the cohesion energy of I and the solvent also increased from MeCOEt to MeOH. At 53°, t for a vulcanizate (with 0.5% S) of butadiene-acrylonitrile polymer (II) and a vulcanizate (0.5% S) of butadiene-styrene polymer (III) in di-Bu sebacate (IV) was 156 and 108 hrs., resp.; and the difference between the ρ of II and IV was greater than that between III and IV. Thus the rate of swelling is greater the smaller the difference between the ρ of the polymer and solvent. The greater the swelling, the more rapidly t decreased with rise of temp. Thus, t for III in IV (large swelling) decreased from 136 to 90 hrs., while t for III in di-Bu phthalate (moderate swelling) decreased from 48 to 20 hrs. between 40 and 60°. J. J. B.

SHVARTS ; A. C.

The compatibility of high polymers. A. G. Shvarts (Sci. Research Inst. Tire Ind., Moscow). *Kolloid. Zhur.* 18, 755-61(1956).—The cohesion-energy density, E, is calcd. for 27 amorphous polymers. When the difference ($E_1^{1/2} - E_2^{1/2}$)^2 for polymers 1 and 2 is small, the polymers are compatible; from literature data, this difference must be <0.017 cal./cc. Polymer mixts. are mechanically strong only when this difference is small.   J. J. Bikerman

BUYKO, G.N.; SHVARTS, A.G.; TUMANOVA, A.I.

Tires made from synthetic polyisoprene rubber. Kauch.i rez.
16 no.5:1-11 My '57.   (MLRA 10:7)

1. Nauchno-issledovatel'skiy institut shinnoy promushlennosti.
             (Automobiles--Tires) (Isoprene)

SHVARTS, A.G.

Nomograms for the determination of the degree of cross-linking
of vulcanizates. Kauch.i rez. 16 no.7:31-34 Jl '57.   (MIRA 10:10)

1.Nauchno-issledovatel'skiy institut shinnoy promyshlennosti.
(Rubber, Synthetic)

SHVARTS, A.G.

Judging the interaction of rubber with solvents. A. G. Shvarts (Tire Inst., Moscow). Kolloid. Zhur. 19, 378-83 (1957).—If k_1^2 and k_2^2 are the specific cohesion energies of rubber and solvent, resp., V is the mol. vol. of solvent, and μ and K depend on the interaction of rubber and solvent, then $k_2 = k_1 \pm [RT (\mu - 0.25)/KV]^{1/4}$. This equation is suitable for graphic representation. Literature data show that μ is identical for filled and unfilled vulcanizates of a rubber (natural, Neoprene, etc.), and K has one value for all hydrocarbons, another for all ketones and ethers, a 3rd for alcohols, etc. The greater μ, the less the swelling of the rubber in the solvent.   J. J. Bikerman

AUTHOR: Shvarts, A.G.

SOV/138-58-11-13/14

TITLE: Evaluation of the Degree of Swelling of Rubbers and Resins
            with the Aid of Ideal Solutions (Otsenka stepeni nabukhaniya
            kauchukov i rezin posredstvom uslovnykh sred)

ABSTRACT: This is a detailed criticism of an article published by
            M.A. Shcherbacheva and S.S. Guseva in Kauchuk i
            Rezina, 1957, Nr 8. Further investigations into the
            selection of standard mixtures of solvents are suggested.
            Changes in the aniline point in a number of normal
            paraffins are tabulated (Table 1) and hydrocarbons with
            approximately equal aniline points are listed in Table 2.
            There are 2 tables and 6 references, 3 of which are Soviet
            and 3 English.

Card 1/1

SHVARTS, A.G.

Necessary book ("Synthetic Rubber" edited by G.S. Whitby.
Reviewed by A.G. Shvarts). Kauch. i rez. 17 no.6:40   Je '58.
                                              (MIRA 11:7)
          (Rubber, Synthetic)

AUTHOR: Shvarts, A G.   76-32-3-37/43

TITLE: Comparative Determinations of the Cohesion Energies of
               Natural and Synthetic Polyisoprene Rubbers (Sravnitel'noye
               opredeleniye energii kogezii natural'nogo i sinteticheskogo
               poliizoprenovykh kauchukov)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol 32, Nr 3, pp 718-719
               (USSR)

ABSTRACT: In the present paper determinations of the specific cohesion
               energy which serves as a measure of the intermolecular inter-
               action of polymers are performed with natural rubber, кик
               SKI, and vulcanizates NK. Data on the method of
               testing and the composition of the vulcanizate as well as
               formulae of calculation are given. The final calculation was
               performed according to Gumbrell Mullins and Rivlin The
               characteristic of the interaction between the rubber and the
               solvent is performed according to the well-known equation
               by Flory (reference 3). From a title, it follows that the
               quantities of parameters of the vulcanizates NK and SKI
               possess very similar values, A diagram of the solubility

Card 1/2

76-32-5-37/43

Comparative Determinations of the Cohesion Energies of Natural and
Synthetic Polyisoprene Rubbers

parameter function is given. From the latter the specific
cohesion energy of the investigated rubbers is given with
$68.0 - 69.0$ cal/cm^3, from which is concluded that the latter,
in spite of a different content of cis- and trans- 1-4 bonds
as well as 3-4 bonds, possess an equal intermolecular interaction
(cohesion). The possibility, however, is left open that the
influence of structure ～～～～～～ to accuracy of measurement
of the method employed. Thus it is considered an established
fact that the specific cohesion energy of NK and SKI,
determined by the method of swelling, is equal in spite of
structural differences. There are 1 figure, 1 table, and 5
references, 2 of which are Soviet.

ASSOCIATION: Institut shinnoy promyshlennosti (Institute of Tire Industry).
SUBMITTED: May 23, 1957

Card 2/2

S/138/59/000/012/001/006

AUTHORS: Shvarts, A. G., Buykov, G. N.

TITLE: On Certain Aspects of Vulcanization of Rubber From Synthetic
             Isoprene SKI Raw Material at High Temperatures

PERIODICAL: Kauchuk i Rezina, 1959, No. 12, pp. 1-4

TEXT: The authors point out the possibilities of increasing the
production output of the rubber industry by vulcanizing automobile tires
and casings at temperatures above 143°C (without decreasing the rubber
quality). It was shown that the decay process and the regrouping of
the sulfur bonds of the vulcanizates play a significant part in the de-
struction of the latter (Refs. 1-3, 4, 5). It was also shown that the
properties of synthetic isoprene SKI rubber are similar to those of
natural rubber. An increase in temperature during the vulcanization
process brought about a drop in the strength of the SKI rubber and a
general decline of the physico-mechanical properties of the vulcanizates.
The vulcanization possibilities of rubber on a SKI base and at temperatures
above 143°C without decreasing the hardness indices in spite of the pre-
sence of destruction processes was studied. Filled and non-filled SKI

Card 1/3

S/138/59/000/012/001/006

On Certain Aspects of Vulcanization of Rubber From Synthetic Isoprene SKI
Raw Material at High Temperatures

vulcanizates (with 50 weight parts of channel carbon black) were investi-
gated. These contained various amounts of sulfur and accelerator, 3.0
weight parts of zinc oxide and 2.0 weight parts of stearin. A description
is given of the procedures undertaken and the component parts used. The
main physico-mechanical indices and the concentration of the transverse
vulcanization bonds were determined. The formula for the determination of
the concentration is given. Fig. 1 and 2 show the relationship between
the rupture-resistance and the relative expansion of the SKI vulcanizates,
containing BT sulfonamide as accelerator, and between the similar NR vul-
canizates and the uegree of the transverse seam. Tables 1 and 2 give a
listing of the test results performed on the filled and non-filled SKI
rubbers with various vulcanizing groups, and vulcanized at various tem-
peratures. The relationship obtained for the rubber stability and the
degree of the transverse seam is the result of the insufficiently regular
structure of the SKI rubber, which is further explained in Refs. 4 and 7.
As a result of this phenomenon, the formation of the crystalline phase
takes place only at certain degrees of expansion in the SKI vulcanizates.
A special composition for the SKI tire rubber was developed by the chemico-

Card 2/3

S/138/59/000/012/001/006

On Certain Aspects of Vulcanization of Rubber From Synthetic Isoprene SKI
Raw Material at High Temperatures

technological department of the NIIShP, on the basis of the regularities
concerning the changes of SKI rubber. The indices of the rubbers vul-
canized at 163°C were not lower than that of the rubbers vulcanized at
138°C (see Table 3). The changes of the main indices of the protective
rubber with an increase in the vulcanizing temperature are shown in
Table 4. As a result of the experimental data obtained it was shown that
the vulcanizing group should be intensified in the vulcanization of SKI-
based rubber for automobile tires at high temperatures. The authors con-
clude that with an increase in the vulcanization temperature the value of
the rupture-resistance of the SKI rubber changes depending on the initial
thickness of the vulcanization lattice. They also proved that there is
a possibility of producing SKI rubbers which, with an increase in vulcani-
zation temperature would undergo an increase in their stability. There
are 3 sets of graphs, 4 tables, 7 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti
              (Scientific-Research Institute of the Tire Industry)

Card 3/3

5(1)
AUTHORS: Shvarts, A. G., Buyko, G. N.   SOV/20-125-2-36/64

TITLE: Some Problems Concerning the Effect of Vulcanization Temperature
             on the Strength of Rubbers Made of Synthetic Polyisoprene SKI
             Caoutchouc (Nekotoryye voprosy vliyaniya temperatury
             vulkanizatsii na prochnostnyye svoystva rezin iz sinteticheskogo
             poliizoprenovogo kauchuka SKI)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 366-368
             (USSR)

ABSTRACT: The increase of vulcanization temperature, leads, due to
             oxidative and thermal processes, to decreasing strength
             primarily in the case of rubber kinds made of natural rubber
             (Refs 1-3). The aforesaid rubber is similar to the latter
             with respect to its structure and properties (Refs 4,5). In
             some cases, however, the strength of SKI rubber increases
             with rising temperature. This problem forms the subject of
             the present communication. Figure 1 shows the dependence of
             specific elongation and tensile strength in the case of empty
             vulcanizates and rubber with 50 parts by weight of gas black
             on the concentration of the vulcanization cross connections,
             which were determined by the method of swelling (Ref 6). The

Card 1/3

Some Problems Concerning the Effect of Vulcanization   SOV/20-'23-2-35/64
Temperature on the Strength of Rubbers Made of Synthetic
Polyisoprene SKI Caoutchouc

vulcanization took 30 mins. at 143°. The rubber kinds under
investigation contained variable doses of sulphur and
accelerators: tetramethyl thiuram disulphide, benzothiazole
sulphene diethylamine and diphenyl guanidine. Application
of various vulcanization accelerators does not alter the nature
of the regularities under investigation but leads to a certain
scattering of indices (Ref 7). The data of figure 1 (right)
show that an increase of the number of vulcanization cross
connections favors, up to a certain extent, the orientation
of rubber molecules under elongation. The strength of
vulcanizates increases accordingly. In samples with a specific
elongation of 1000 - 1200 % a crystalline phase is formed by
elongation, whereby the tensile strength of SKI vulcanizates
approaches that of natural rubber. With further increase of
the cross connections, however, the conditions of orientation
vary during the deformation of rubber. The experimental
results obtained show (Tables 1,2) that the strength of rubber
kinds in which the concentration of vulcanization cross con-
nections is higher at the respective temperature than the

Card 2/3

Some Problems Concerning the Effect of Vulcanization   SOV/20-125-2-36/64
Temperature on the Strength of Rubbers Made of
Synthetic Polyisoprene SKI Caoutchouc

optimum one, increases due to rising vulcanization temperature.
This rise increases in inverse proportion to the relative role
of the oxidative processes which destroy the molecules with the
action of high temperatures. The strength increases as long
as the concentration of the cross connections has not attained
the optimum maximum. With further temperature increase the
strength begins to decrease. It is supposed that also rubber
stocks may be produced from natural and divinyl-styrene rubber,
the strength of which does not decrease at an increased
vulcanization temperature. There are 1 figure, 2 tables, and
7 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti
               (Scientific Research Institute of the Tire Industry)

PRESENTED: October 8, 1958, by V. A. Kargin, Academician

SUBMITTED: September 20, 1958

Card 3/3